



North Carolina Enterprise Electronic Forms and Digital Signatures

Quarterly Report April 2012

North Carolina Office of the State Controller

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Table of Contents

| | |
|---|----|
| I. Background | 3 |
| II. Authentication Project (Digital Signatures) | 4 |
| A. Purpose | 4 |
| B. Approach | 4 |
| C. Initial Deployments | 5 |
| D. Benefits..... | 6 |
| E. Next Steps..... | 8 |
| III. Automation Capability Project (eForms) | 8 |
| A. Purpose | 8 |
| B. Approach | 9 |
| C. Initial Deployments | 9 |
| D. Benefits..... | 10 |
| E. Next Steps..... | 11 |
| IV. Accomplishments | 12 |
| V. Challenges | 12 |
| VI. Timeline..... | 13 |
| Appendices..... | 14 |

I. Background

Session Law 2011-0145, House Bill 200, directed the State Controller to take the necessary measures to enable a coordinated enterprise electronic forms and digital signatures capability. The Office of the State Controller (OSC) has been working with agencies across the State to determine the best approach. While there are intersections between eForms and digital signatures, the following is also true:

- Automating business processes (eForms) does not always involve digital signatures.
- Digital signatures can be plugged into an automated business process.
- Solutions in the marketplace are often separate.

A survey of high-level agency requirements and some of the available mature solutions have led OSC to organize this effort in two projects:

1. The **Authentication Project**. This project focuses on digital signatures, thereby eliminating resource-intensive processes that require agencies, citizens, and staff to manually sign documents.
2. The **Automation Capability Project**. This project focuses on helping agencies be more efficient while eliminating paper processes by automating complex processes that encompass multiple forms and checkpoints. The current focus is on inspections, licensing and permitting.

OSC is committed to working across all agencies to provide practical and useful solutions. Agency participation is broad and enthusiastic. (See Appendix B and C for workgroup membership.) OSC is also ensuring agency awareness by updating all CIOs at their monthly meetings.

Further, OSC's overall plan incorporates the statute's specification of an *enterprise capability* for executive branch agencies. OSC has a history of providing successful capabilities at the state enterprise level (i.e., PayPoint), and believes an enterprise offering with flexible on-boarding will result in greater adoption rates than an enforced solution will ultimately provide. To maximize agency participation, OSC is concentrating on solutions that meet widespread needs, are cost-effective, easy-to-use and easy to access.

Based on feedback from agencies, OSC will proceed with a decentralized approach on the projects. This approach will allow OSC to enter into contracts with vendors and allow agencies to access services as they need them. OSC's role will be to provide contract administration, on-boarding assistance, training to agencies in coordination with the vendors, core system implementation and maintenance, and help desk support. Agencies will be able to maintain their own forms, workflows,

and configurations that meet their business needs. The two cross-agency workgroups (described in detail below), determined the best use of scarce resources is to purchase solutions from vendors, rather than to build these capabilities in-house.

II. Authentication Project (Digital Signatures)

A. Purpose

The goal of the Authentication Project (digital signatures) is to develop an enterprise authentication capability that will:

- Automate simple forms.
- Provide offerings that are secure.
- Provide auditable evidence that appropriate processes have been followed.
- Be used easily by individuals for *ad hoc* signing.
- Be integrated with automated business processes.

The Authentication Project has the potential to greatly increase efficiency across the State by obtaining approvals/signatures at the necessary level of assurance, putting them through an approval process (called a “workflow”), and capturing the data in back-end systems. Both internal and public-facing approvals/signatures can be automated.

OSC is collaborating with agencies to determine the levels of authentication that provide maximum benefits and set priorities accordingly. The Authentication Workgroup is comprised of members from the Administrative Office of the Courts, Cultural Resources, Health and Human Services, Industrial Commission, Information Technology Services, Justice, Office of the State CIO, Public Safety, Revenue, State Controller’s Office, and the Secretary of State. Full membership information is listed in Appendix B.

B. Approach

The Authentication Workgroup engaged in market research, consulted with subject matter experts, reviewed vendor presentations and came to the conclusion that a Software as a Service (SaaS) solution is the best answer for the State’s Authentication (digital signature) capability requirements. SaaS is a software delivery model in which software and its associated data are hosted in the cloud and are accessed by users over the Internet. This approach will allow the State to leverage volume pricing due to shared infrastructure with other customers, avoid building infrastructure, and enable more-rapid business process execution.

According to Gartner research, SaaS is now the preferred delivery model for digital signatures. SaaS-based offerings will be used for 80 percent of all new North American eSignature purchases by 2013, compared with 15 percent in 2009 (In the North American eSignature Market, SaaS Offerings Are Increasingly in Demand: August 18, 2011, ID Number G00215378). OSC's intent is to provide a solution that is nimble and can help executive branch agencies solve a wide variety of authentication (digital signature) challenges.

Based on feedback and suggestions from agencies, OSC's will proceed with a decentralized approach. This approach will allow OSC to enter into contract with a vendor and allow agencies to access services, as they need them.

The Office of the State Controller along, with input from the Authentication Workgroup, has issued a Request for Proposal (RFP) for an indefinite quantity contract that would provide tiers of pricing based on transaction volume. The quantity of goods or services is undetermined. Vendors will be bidding based on past history or other means as a guide. OSC provided vendors with an Inventory of Forms that represents the potential quantity of forms to be automated and digitally signed. **This inventory contains approximately 700 forms that constitute five million transactions annually within State government.**

The convenience contract for an indefinite quantity contract will be available for use by State Executive Branch agencies as well as non-State Agencies permitted by law. Such entities include the North Carolina University System and its member campuses, instructional components of the Department of Public Instruction, instructional components of the North Carolina Community College System, as well as local (municipal and county) governments. Request for Proposal (RFP) responses will be evaluated on the ability to meet appropriate levels of authentication, automation of forms, workflow capabilities, audit trail and repudiation functions, mobile device support, security, training, costs, and support and maintenance.

OSC has a target date of June 2012 for award of the contract.

OSC will work with agencies to create an on-boarding plan and provide assistance in determining level(s) of assurance that may be needed for their business process. OSC and the agency will determine which forms would be easily automated, the priority for applying digital signatures, and the potential back-end integrations. After initial vendor training, OSC will train agency system administrators and provide help desk support. There may be some statewide forms that can be offered centrally at OSC, but the primary assumption is that most activity will occur within the agencies.

C. Initial Deployments

Once a vendor is on-board, OSC will work with the vendor and the agencies on the initial deployments to plan, develop and implement the process and system. The Authentication project will be conducting two initial deployments:

- 1) **Travel and Reimbursement Form Pilot** - Approximately 97,000 travel reimbursements are processed annually for State agencies using the North Carolina Accounting System (NCAS). Each employee uses a travel and expense spreadsheet which, along with supporting receipts, is routed through an approval workflow. Currently this is all done manually with paper forms and wet-ink signatures. At the end of the process, data is entered into NCAS. This initial deployment will result in the automation of the form, travel receipts, workflow process and digital signature(s).

OSC will create and manage a template for the Travel and Reimbursement form that agencies will be able to use. Agencies will have the option to add additional information to the form that is required for their employees' reimbursement to be processed. The possibility of launching the form from the BEACON portal is being investigated.

- 2) **Criminal History Background Check request** - Individuals applying for certain jobs must undergo a fingerprint-based criminal history background check. When an employing agency wants to hire a person into such a position, the employing agency's authorized representative provides the applicant with an Authorization for Release of Information (AFR) form. Approximately 135,000 requests are sent to the SBI each year, many from state agencies such as Health and Human Services. The electronic signature capability will allow potential candidates applying for agency positions to digitally sign the form, send it to the hiring agency who can review and then route to the SBI for processing.

D. Benefits

The Authentication Project will eliminate resource-intensive processes that require agencies, citizens, and staff to manually sign documents (with "wet-ink" signatures). The Authentication Project can also provide added assurances of the evidence to the origin, identity, and status of an electronic document as well as acknowledging informed consent and approval by a signatory. Results of the OSC pilot and the projected benefits are described below.

OSC Pilot – Travel Reimbursement

When OSC was given this project, the Community College System Office had already initiated a six-month pilot program to authenticate (digitally sign) some of their internal forms. Partnering with Community Colleges, OSC participated in their pilot project, and gained experience with the authentication process (digital signatures). While the Community College System Office is

automating/authenticating several of their forms, OSC is using the solution to test the OSC Travel and Reimbursement Form.

During the last four months, OSC has been conducting a small pilot project using a prototype digital signature process for the Travel and Reimbursement form for the CJLeads Training Team. Although the sample size was small (32 reimbursements), the automated workflow was twice as fast in each of the approval steps.

- From the employee to the supervisor, approval took 1.3 days for the automated process versus 2.6 days for the manual process.
- From the supervisor to the financial department, approval took an average of 1.3 days versus 2.5 days for the manual process.
- Thus the form processing was cut in half, from 5.1 days to 2.6 days.

Forms with more approval steps in their workflow will achieve even greater time savings.

Users of the automated process made the following observations:

- “Ability to post notes to approvers and receive notes if declined – nice feature – time reducing in phone calls.”
- “Being that I am on the road a lot, it’s much easier to submit these electronically.”
- “From an approver perspective I appreciated the speed with which forms could be submitted, approved/declined and processed regardless of whether or not the traveler was physically in the office.”
- “The electronic work flow facilitates approval or disapproval since the reviewers and approvers can act upon the process even if off-site.”

Expected Benefits of Full Deployment of the Travel and Reimbursement Form

With approximately 97,000 travel reimbursements processed annually for State Agencies using North Carolina Accounting System (NCAS), monetary savings for reducing the amount of paper used in State government can be calculated.

- **Printing:** A typical Travel and Reimbursement form has 5 pages (including copies of receipts); thus, there are 485,000 pages routed through State offices annually. If one copy of each reimbursement form is printed for review, one copy is printed and given to the employee, and one copy is printed for office storage, then the total number of pages routed through State offices increases to about 1.5 million. At a cost of \$.15 per page (paper, toner, maintenance, etc) the annual printing costs for these 1.5 million pages is \$218,000.
- **Storage:** Including the cost to store these 1.5 million pages (cost of new file cabinets, space for new file cabinets, additional office space for cabinets, etc) adds an additional \$57,000.

- Staff: The staff time to store and retrieve these documents equals approximately 10 minutes to store new files and 10 minutes to retrieve a document from storage, at an average hourly wage of \$15. It will take administrative staff about 3,300 hours annually to file and retrieve documents. This adds an additional \$50,000 to the cost of these 1.5 million pages.
- Total: Thus the total costs to print, store, and process these 97,000 travel reimbursements is \$325,000 annually.

E. Next Steps

- Evaluate proposals.
- Negotiate and award contract, June 2012.
- Work with agencies to develop on-boarding schedules.
- OSC to hire staff to work with Agency personnel to determine how best to apply Digital Signatures to their existing processes, and provide training and help desk support.
- Initial deployments.

III. Automation Capability Project (eForms)

A. Purpose

The goal of the Automation Capability Project (initially called *eForms*) is to develop an enterprise automation capability that will focus on eliminating paper forms, reducing processing time, eliminating duplicate data entry, improving data integrity and automating the workflow. OSC has determined that focusing on a single type of business process will allow the project to be scaled and right-sized into manageable components.

After discussions with numerous state agencies, OSC is tailoring the project to automate business processes that are common to many: ***inspections, licensing and permitting***. The Departments of Agriculture, Environment and Natural Resources, Labor, Revenue and Transportation have these tasks as core business functions, and their need for automation is great. (See Appendix C for potential deployments)

The Inspections, Licensing and Permitting Automation Capability Project will provide three steps of automation:

- Front-end collection of data, often in the field (for example, in the building where an elevator is being inspected)
- Obtaining approvals through a workflow,
- Data capture and storage.

OSC is working to provide a cost-effective solution, meet a widespread need, provide maximum, successful results, and create efficiencies and cost savings for agencies.

B. Approach

The Enterprise-Wide Inspections, Licensing and Permitting Capability will be used across State government for various inspections, licensing and permitting activities.

OSC will establish a convenience contract for an indefinite quantity contract that will be available for use by Executive Branch agencies as well as non-State agencies permitted by law. Such entities include the North Carolina University System and its member campuses, instructional components of the Department of Public Instruction, instructional components of the North Carolina Community College System, as well as local (municipal and county) governments.

The core system will be centrally managed and hosted by the Office of the State Controller with each agency having separate configurable instances that will meet their different business processes for a wide variety of inspection licensing and permitting processes. OSC will also provide assistance with process re-engineering, training in conjunction with the vendor, and help desk support.

The cross-agency Inspections, Licensing and Permitting Workgroup wrote a request for proposal (RFP), including detailed business requirements. The RFP is scheduled to be released in April 2012.

C. Initial Deployments

The workgroup reviewed potential initial deployment projects and identified two. These will be the first projects undertaken once a vendor is selected:

1) Department of Labor (DOL) elevator inspections. DOL has documented the business process in detail, which will assist in automation. Thirty-five inspectors in Labor's Elevator and Amusement Device Bureau inspect all 23,000 elevators in the state on an annual basis, and violations may require follow-up inspections; this process is often backlogged.

2) Department of Environment and Natural Resources (DENR) sedimentation and erosion control permits. The purpose of the sedimentation and erosion permit is to prevent sedimentation damage to streams and adjacent properties from construction activities (ensuring compliance with the Sedimentation and Pollution Control Act of 1973). The yearly average of sedimentation inspections is 18,756, and violations may require a number of actions, including referral to enforcement.

The initial deployments are expected to take approximately six to nine months for full implementation. However, other agency deployments may be implemented in parallel depending on the vendor, agency and OSC resources.

D. Benefits

The Inspections, Licensing and Permitting Automation Capability Project will reduce paper, reduce processing times, eliminate duplicate data entry, improve data integrity, and provide for on-line service options. Expected benefits from the initial deployment are described below.

Elevator Inspections

For the Department of Labor (DOL), automating elevator inspections will increase effectiveness and efficiency, as well as:

- First-year increase of at least five to seven percent in the number of inspections per inspector.
- Second-year increase of at least an additional five to seven percent inspections per inspector.
- In two years, reduce the current 14-month inspection cycle to the mandated 12-month cycle without adding additional inspectors (16 percent overall improvement in cycle time) while simultaneously improving inspection quality and customer service levels.

All bureau stakeholders will be directly or indirectly impacted:

- Elevator inspectors will see reduced report-processing workload, simplified inspection planning, scheduling and routing.
- Inspectors will also have increased access to data, and greater emphasis on computer literacy.
- Elevator office assistants will see significant reduction in time spent on support tasks due to increased web-based self-service options for elevator owners, **a shift from data entry to data quality control.**
- Elevator owners will see accelerated task completion due to electronic delivery of communications, improved customer service as a result of web-based self-service options and improved transparency/visibility into inspections.
- Elevator Bureau management will realize immediate visibility into individual and business unit performance statistics and trend analysis enhances safety improvements, efficient resource allocation and long-term strategic planning. Reduced day-to-day management workload enables inspection activities aimed at improving actual bureau operations instead of effort on reactionary activities.

- According to the Department of Labor, the general public will experience improved safety of elevators and amusement devices and fewer injuries and fatalities due to the increased efficiency and greater effectiveness.

Sedimentation and Erosion Control Automation

Expected benefits of DENR's Erosion and Sediment Control Automation project are

- Better customer service through an organized and transparent regulatory process.
- Decreased processing times through direct inputs instead of handwritten forms entered into a system.
- Improved data accuracy.
- Improved workflow management.
- Staff time savings from eliminating manual data entry.
- Fewer status calls.
- Cost savings for the Department and the customer (see below).
- Improved tracking, scheduling and reporting.

The most notable and apparent benefit will be to the department's citizen customers. Since the entire construction project must wait for approval before beginning a project, the customer can accumulate significant interest costs on their construction loan if the wait is long. The new solution will allow regulatory information to be immediately available to the customer. Inspection reports can be completed and delivered on site and the data automatically sent to the appropriate data systems. This results in decreased processing times from the elimination of redundant work.

Each customer will save \$225 on copies, totaling \$650,000 per year. They will achieve even more customer savings in construction loan interest. Additionally, the customer will save time by being able to electronically view status, schedule final inspections, and avoid drive time.

For inspections and plan review, the State will save on certified mail, postage, printing, ink, envelopes and paper. Any staff savings could be redirected to plan reviews during peak times, process improvements, customer follow-up and other customer service tasks. The cumulative savings for the inspections is estimated at \$140,000.

E. Next Steps

- Post RFP.
- Review proposals.
- Negotiate and award contract.

- Hire staff at OSC to assist with on-boarding, training, managing and maintaining the core system and help desk support.
- Initial Deployments.
- Develop on-boarding schedule based on the projects listed in Appendix D.

IV. Accomplishments

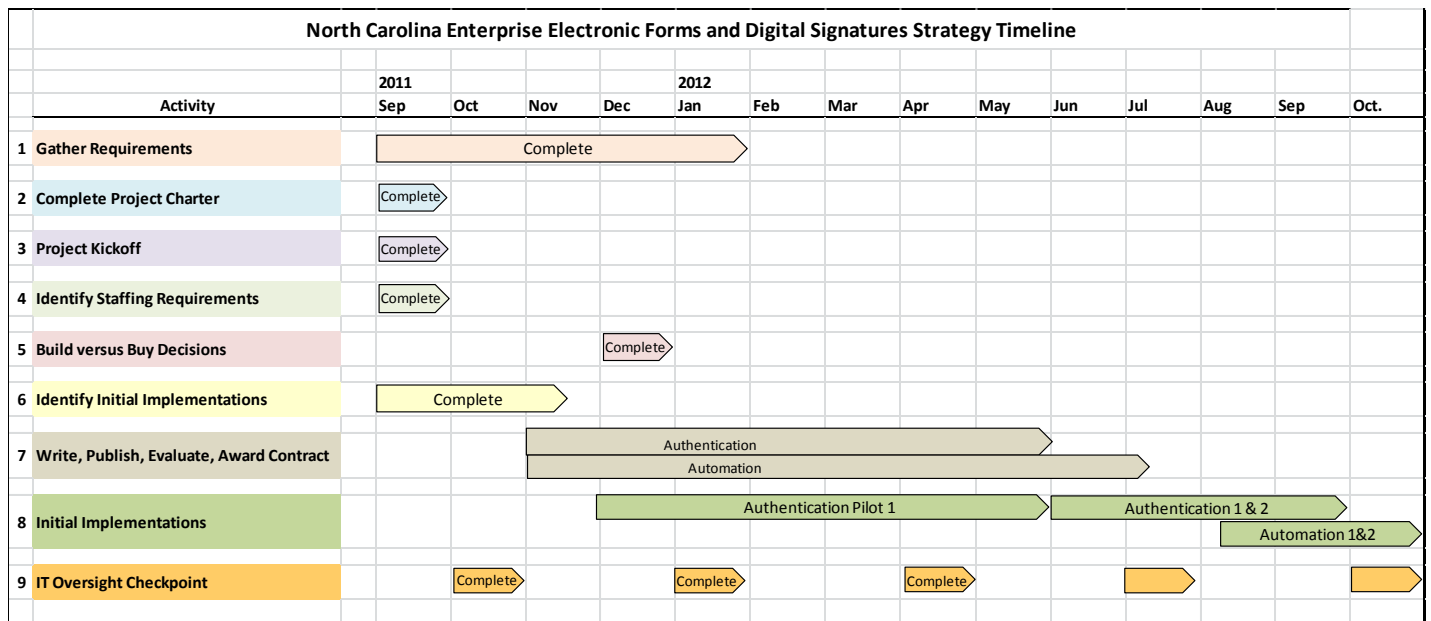
- ✓ Assembled Workgroups.
- ✓ Identified initial deployments.
- ✓ Gathered requirements.
- ✓ Conducted Agency Meetings.
- ✓ Wrote two requests for proposal.
- ✓ Completed pilot prototype for digital signature.
- ✓ Submitted an expansion budget request for software, hardware, and staffing needs.

V. Challenges

OSC has identified several challenges that could inhibit the successful implementation of the Authentication and Inspections, Licensing and Permitting Automation Capability Projects. OSC submitted an Expansion Budget Request for FY2012-13 and FY2013-14 in the following areas:

- Support Staff: Support for the agencies through project management, business process re-engineering, core system support, and training is required for the capability to be embraced and implemented at a rapid and efficient pace. **Three positions have been requested in OSC's FY2012-13 and FY2013-14 expansion budget request that would assist agencies with both of these projects.**
- Funding: A preliminary review of the marketplace leads OSC to believe the budget provided will be insufficient to provide enterprise-wide solutions to meet the state's authentication and automation needs. An expansion budget request was submitted for increased funding to cover software, hardware, and transaction costs needed to run these enterprise capabilities.

VI. Timeline



Appendices

Appendix A: SESSION LAW 2011-0145, HOUSE BILL 200

Session Law 2011-145 asked the State Controller to provide enterprise capability for eForms and digital signatures. The law asked for costs, priorities and milestones. Agency requirements must be part of the planning process.

SECTION 6A.18. (a)

Under the direction of the State Controller, the State shall plan, develop, and implement a coordinated enterprise electronic forms and digital signatures capability. In developing this capability, the State Controller shall determine the cost of converting forms to an electronic format, determine priorities for converting forms, and establish milestones for completing this conversion. The State Controller shall integrate executive branch agencies already in the process of developing electronic forms and digital signatures projects. Before beginning this effort, the State Controller shall determine specific agency requirements and incorporate their requirements into its planning efforts.

SECTION 6A.18. (b) Beginning October 1, 2011, the State Controller shall present quarterly reports on the status of the project to the Joint Legislative Oversight Committee on Information Technology.

Appendix B: Authentication Workgroup Membership

Patrick Blalock, Department of Health and Human Services

Bob Brinson, Department of Public Safety

Bobby De Clippelaar, Department of Justice

Kelly Eubank, Department of Cultural Resources

Mike Fenton, Office of the State CIO

Bob Giannuzzi, Office of the State CIO

William Haney, Information Technology Services (ITS)

Sharon Hayes, Office of the State Controller

Ginger Helms, Administrative Office of the Courts

Dan Kempton, Department of Revenue

Kirk Leggott, Industrial Commission

Tom Newsome, Office of the State Controller

Lois Nilsen, Office of the State CIO

Pete Powell, Administrative Office of the Courts

Patricia Ray, Information Technology Services (ITS)

Charles Richards, Office of the State CIO

Ozie Stallworth, Office of the Secretary of State

Jim Tulenko, Office of the State Controller

Appendix C: Automation Workgroup Membership

David Alford, Department of Transportation

Mike Fenton, Office of the State CIO

Bob Giannuzzi, Office of the State CIO

Sharon Hayes, Office of the State Controller

Dan Kempton, Department of Revenue

Chris Lehenbauer, Department of Labor

Mike Mason, Office of the State Controller

Edythe McKinney, Department of Environment and Natural Resources

Tom Newsome, Office of the State Controller

Lois Nilsen, Office of the State CIO

Jane Price, Department of Agriculture

Charles Richards, Office of the State CIO

Appendix D: Potential Future Deployments of Inspections, Licensing and Permitting Automation System

Listed below are potential projects that have been identified. OSC believes there is even further potential for the requested solution.

Department of Agriculture

| Anticipated Deployment | Anticipated Number of Inspections/Permits / per Year | Total Number of Professional and Business Licenses | Current Professional and Business Licenses (New or Renewed) | Anticipated System Users | Concurrent System Users |
|---------------------------------|--|--|---|--------------------------|-------------------------|
| Fertilizer (PIFF) | | 710 | 446 | 2 | 2 |
| Plant Protection (PIPP) | 6500 | 8492 | 4637 | 3 | 3 |
| Seed (PISE) | | 6882 | 4612 | 4 | 2 |
| Structural Pest (SPSP) | 5600 | 8653 | 5253 | 15 | 10 |
| Pesticide (FDPR) | 850 | 21378 | 14778 | 15 | 10 |
| Pesticide (FDPE) | 7050 | 25152 | 12542 | 17 | 10 |
| Sleep Products | 3000 | 1700 | 1700 | 5 | 2 |
| Animal Welfare (VEVE) | | 1151 | 750 | 9 | 6 |
| Avian/Livestock (VERL) | | 3677 | 1565 | 10 | 3 |
| Food (FDCL) | | 5191 | 842 | 5 | 2 |
| Prescription Drug (FDPD) | | 2290 | 1560 | 3 | 2 |
| LP Gas (STLP) | 6676 | 2653 | 1602 | 5 | 3 |
| Scale & Petroleum Device (STSL) | | 3071 | 1304 | 1 | 1 |
| Weighmaster (STWM) | | 12032 | 6603 | 5 | 2 |
| Fiscal Mgmt Grain (ADFM) | | 612 | 354 | 2 | 2 |

Department of Labor

| Anticipated Deployment | Anticipated Number of Inspections/ Permits per Year | Anticipated Number of Professional and Business Licenses | Anticipated Users | Concurrent System Users |
|--|---|--|-------------------|-------------------------|
| Migrant Housing Annual Inspection | 1400 | | 10 | 5 |
| Boiler and Pressure Vessel Inspections | 45,000 | | 100 | 25 |
| Youth Employment Certificates | | 85,000 | 3 | 1 |

Department of Transportation

| Anticipated Deployment | Anticipated Number of Inspections/ Permits per Year | Anticipated Number of Professional and Business Licenses | Anticipated Users | Concurrent system users |
|------------------------|---|--|-------------------|-------------------------|
| Driveway Inspections | 2000 | 0 | 25 | 15 |
| Outdoor Advertising | 1000 | 0 | 10 | 7 |

Department of Environment and Natural Resources

The Department of Environment and Natural Resources manages 140 types of permits, plans, licenses and certifications, across air quality (e.g., air permits), water quality (e.g., animal waste permits), waste management (e.g., hazardous waste management), land management (e.g., mining permits), and marine fisheries (e.g., commercial fishing vessel registration).